

# HR ANALYTICS

## Employee Retention



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DATA ANALYST

# **Project Name : Employee Retention**

## **Domain : HR Analytics**



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# Presentation Outline

- Introduction
- Objectives
- Methodology
- KPI's
- Dashboard
- Strategies for Improving Employee Retention
- Recommendation
- Conclusion

# Introduction:

HR analytics involves the collection and analysis of HR-related data, including employee data, performance metrics, and other relevant data points. By using advanced analytical tools and techniques, HR analytics provides valuable insights into HR processes and trends, enabling organizations to make more informed decisions about their employees and improve overall performance.

## KPI's:

- Average attrition rate for all Departments
- Average hourly rate of Male Research Scientist
- Attrition rate Vs Monthly Income stats
- Average working years for each Department
- Job role Vs Work life balance
- Attrition rate Vs Years Since last promotion

# Objective:

The aim of this project is to analyze employee retention and attrition rates with the organization and provide insights to the HR team for developing effective retention strategies. Through data analysis and visualizations, we will identify factors that contribute to :

- ✓ Employee attrition.
- ✓ Evaluate the effectiveness of existing retention strategies.
- ✓ To verify the satisfaction level of employee in the organization.
- ✓ Provide recommendations to improve employee retention.



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# Methodology

- **Data Cleaning Process**

- Before modeling, we implement a thorough data cleaning process to ensure the accuracy and reliability of the dataset. This involves handling missing values, removing duplicates, and addressing any inconsistencies in the data.

- **Feature Engineering**

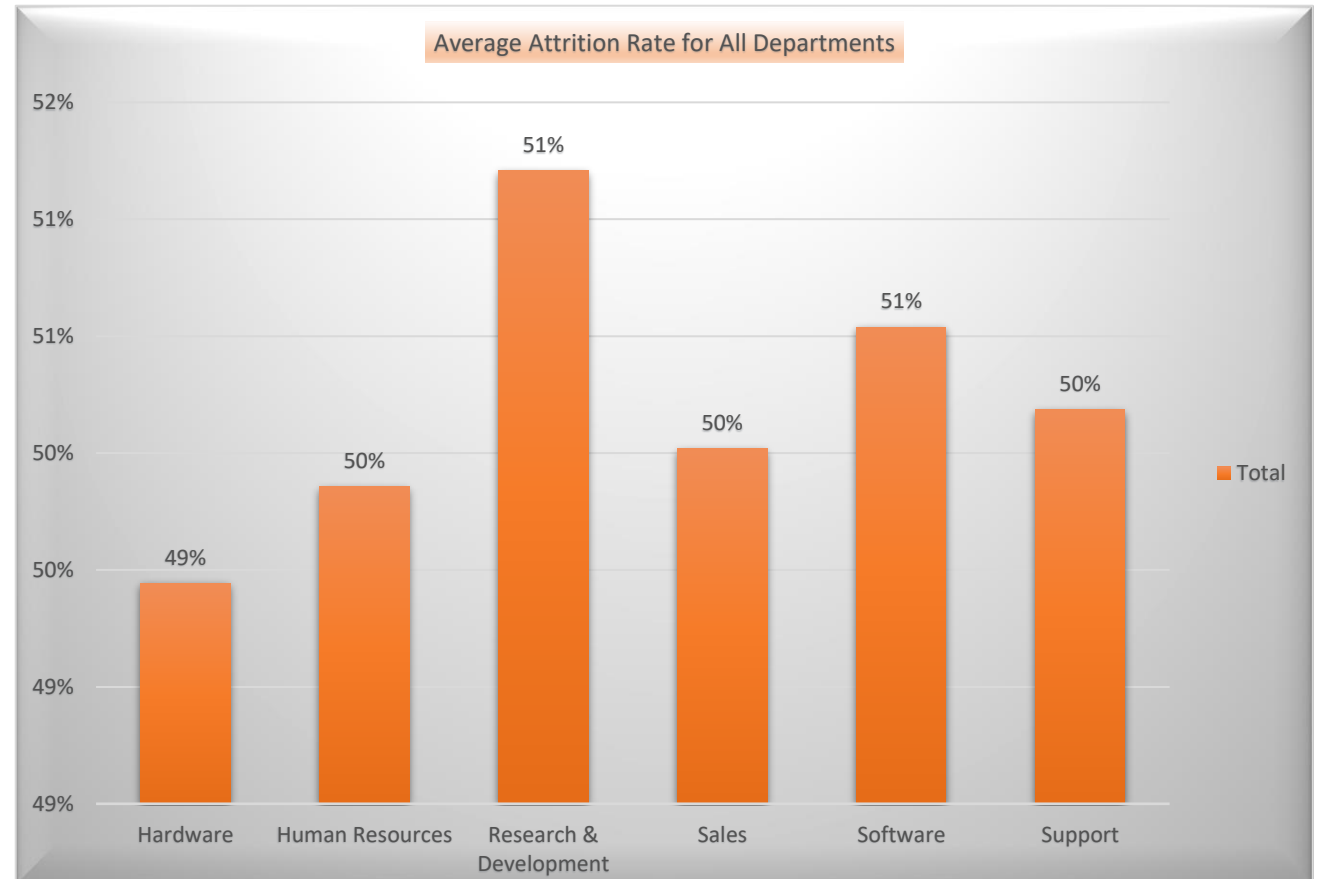
- During the data modeling phase, we focus on feature engineering to extract relevant insights from the dataset. This involves creating new features, transforming existing ones, and selecting the most influential variables for the model.

## Model Selection and Validation

We employ a rigorous approach to model selection and validation, utilizing techniques such as cross-validation and ensemble methods to ensure the robustness and generalizability of the model's performance.

# KPI 1 Average Attrition rate for all Departments



This KPI is to find out the relationship between each department and its attrition rate and here attrition rate is highest for Research & Development Department whereas lowest is for Hardware Department.



```

SELECT
    Department,
    CONCAT(FORMAT(AVG(attrition_y) * 100, 2), '%') AS Attrition_Rate
FROM
    (
        SELECT
            Department,
            Attrition,
            CASE
                WHEN Attrition = 'Yes' THEN 1
                ELSE 0
            END AS attrition_y
        FROM
            hr_1
    ) AS a
GROUP BY
    Department;

```

| Result Grid   Filter Rows: |                        |                |
|--|------------------------|----------------|
|  | Department             | Attrition_Rate |
| ▶  | Software               | 50.54%         |
|  | Human Resources        | 49.86%         |
|  | Sales                  | 50.02%         |
|  | Support                | 50.19%         |
|  | Hardware               | 49.44%         |
|  | Research & Development | 51.21%         |

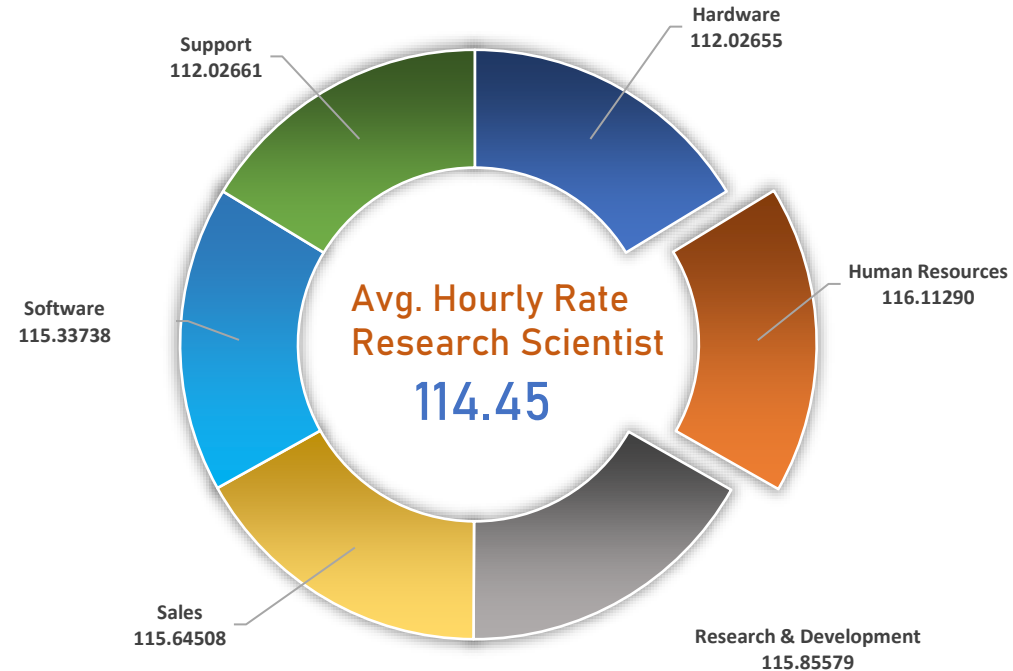
# Insights from KPI 1:

We can clearly say that attrition rate of employees for every department is almost 8% which indicates that attrition rate of employees does not depend on department.

From this calculation and visualization we concluded that we must make strong strategies to minimize attrition rate and improve our company's Employee retention so that we can balance the company's growth and right talent.



## Average Hourly rate of Male Research Scientist



**KPI 2**  
**Average**  
**Hourly rate**  
**of Male**  
**Research**  
**Scientist**

### Insights from KPI 2 :

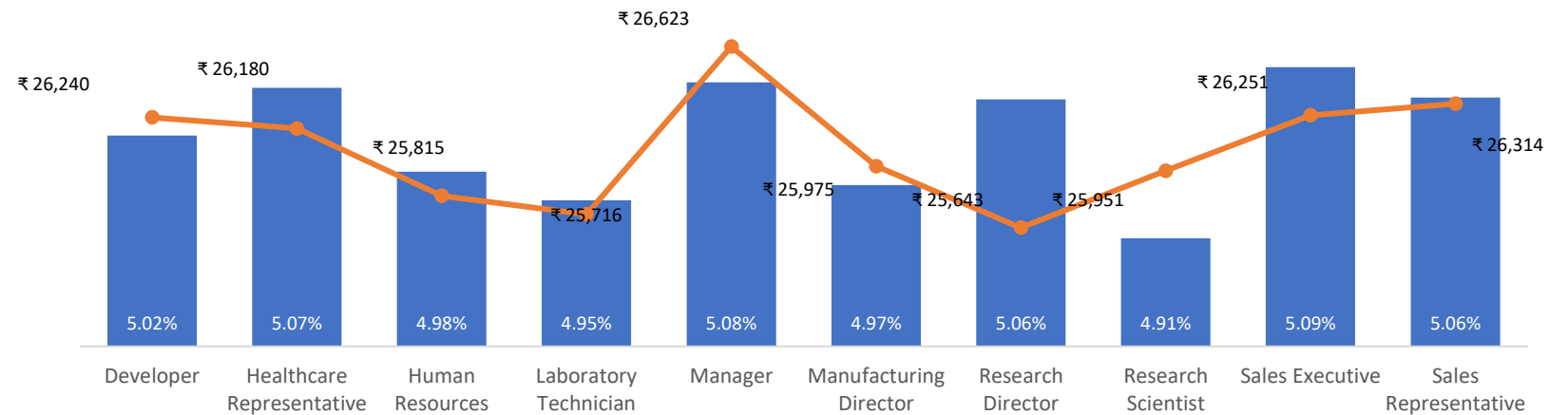
This KPI is to find out the average hourly rate of male research scientists along all the departments which is **114.45**

# KPI 3

## Attrition Rate

### Vs

## Monthly Income Stats



This KPI is to find out the relation the between monthly income and Attrition rate.

```

create view Attrition_Rate_Vs_Monthly_Income as
select JobRole,round((count(EmployeeNumber) /50000)*100,2) as avg_attrition_rate, avg(MonthlyIncome)
from hr_1 inner join hr_2
on hr_1.EmployeeNumber=hr_2.`EmployeeID`
where Attrition="yes"
group by JobRole;

```

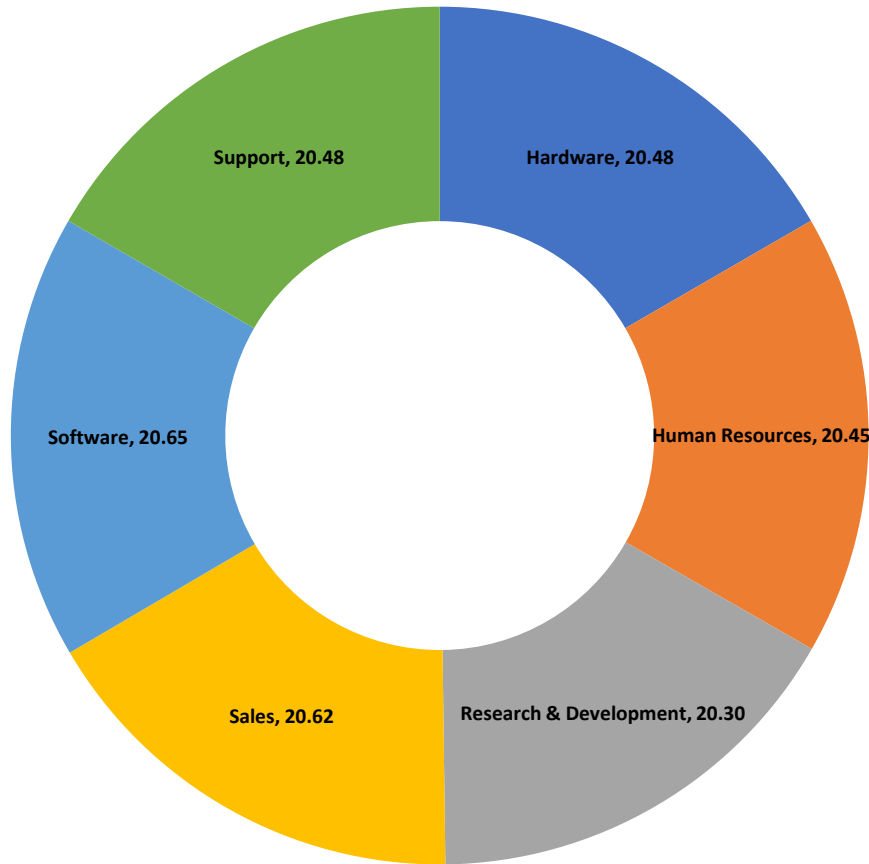
| Result Grid               | Filter Rows:       | Export:            | Wrap |
|---------------------------|--------------------|--------------------|------|
| JobRole                   | avg_attrition_rate | avg(MonthlyIncome) |      |
| Research Director         | 5.06               | 25642.9526         |      |
| Sales Executive           | 5.09               | 26251.0565         |      |
| Manufacturing Director    | 4.97               | 25975.4358         |      |
| Manager                   | 5.08               | 26622.8515         |      |
| Developer                 | 5.02               | 26239.8383         |      |
| Healthcare Representative | 5.07               | 26179.5229         |      |
| Sales Representative      | 5.06               | 26313.7262         |      |
| Laboratory Technician     | 4.95               | 25715.5139         |      |
| Human Resources           | 4.98               | 25815.1693         |      |
| Research Scientist        | 4.91               | 25951.0700         |      |

# Insights from KPI 3:


Based on our analysis and visualization, it is evident that the **Research Scientist** has the lowest attrition rate of **4.91%**, with an average monthly income of **Rs.25,951.07**. On the other hand, the **Sales Executive** has the highest attrition rate of **5.09%**, with an average monthly income of **Rs. 26,251.05**.

# KPI 4

## Average Working Years for each Department



```
create view Avg_Working_Yrs_Department as
select Department, avg(TotalWorkingYears)
from hr_1 inner join hr_2
on hr_1.EmployeeNumber=hr_2.`EmployeeID`
group by department;
```

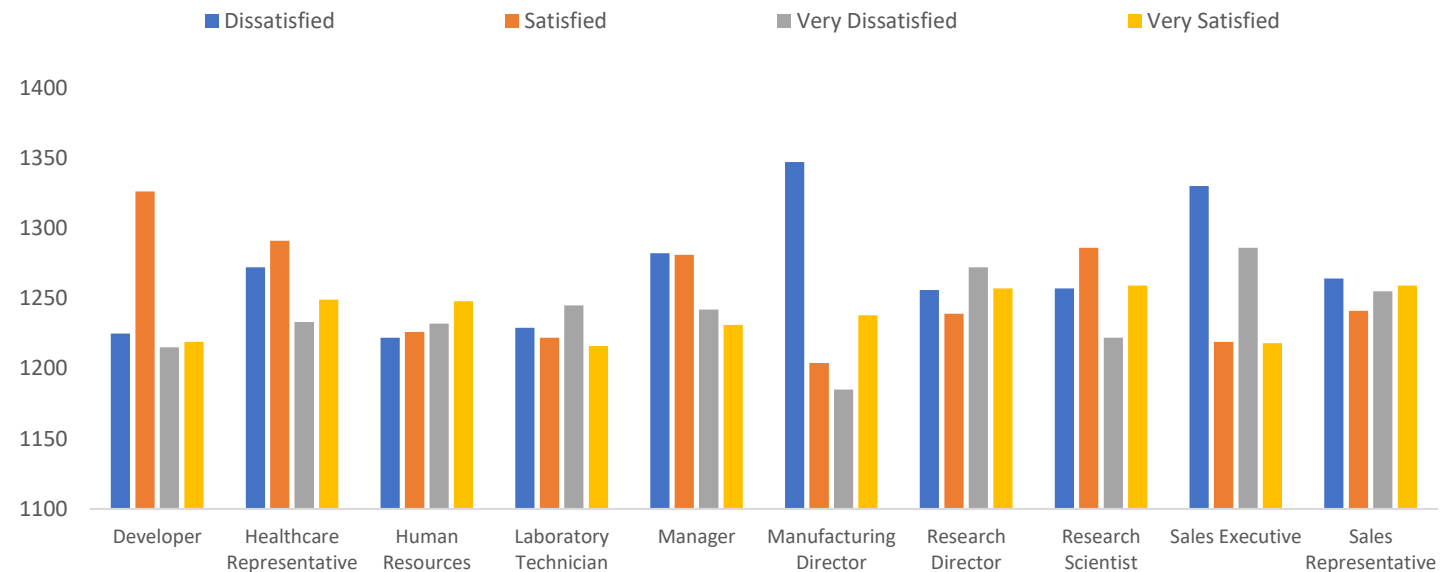
| Result Grid    Filter Rows: <input type="text"/> |                        |                        |
|---|------------------------|------------------------|
|   | Department             | avg(TotalWorkingYears) |
| ▶   | Hardware               | 20.4794                |
|   | Support                | 20.4845                |
|   | Sales                  | 20.6178                |
|   | Research & Development | 20.2985                |
|   | Software               | 20.6453                |
|   | Human Resources        | 20.4537                |

# Insights from KPI 4:

From this we can see the average working years in **software** department is high as compared to the rest of the departments and lowest is for **Research & Development** Department.

From the analysis we can conclude that average working years is approximately 20 for all the departments.

# KPI 5 Job Role Vs Work Life Balance for Total Employees



```

create view Job_Role_VS_WorkLife_Balnce as
select JobRole,
count(case
    when WorkLifeBalance=1 then "Very Dissatisfied"
    when workLifeBalance=2 then "Dissatisfied"
    when WorkLifeBalance=3 then "Satisfied"
    else "Very Satisfied"
end) as Work_Life_Balance,
case
    when WorkLifeBalance=1 then "Very Dissatisfied"
    when workLifeBalance=2 then "Dissatisfied"
    when WorkLifeBalance=3 then "Satisfied"
    else "Very Satisfied"
end as Work_Life_Balance_Status
from hr_1 inner join hr_2
on hr_1.EmployeeNumber=hr_2.`EmployeeID`
group by JobRole,Work_Life_Balance_Status;

```

| JobRole                 | Work_Life_Balance | Work_Life_Balance_Status |
|-------------------------|-------------------|--------------------------|
| Research Director       | 1256              | Dissatisfied             |
| Sales Executive         | 1218              | Very Satisfied           |
| Human Resources         | 1222              | Dissatisfied             |
| Human Resources         | 1248              | Very Satisfied           |
| Manufacturing Director  | 1347              | Dissatisfied             |
| Sales Executive         | 1330              | Dissatisfied             |
| Developer               | 1326              | Satisfied                |
| Manager                 | 1242              | Very Dissatisfied        |
| Manager                 | 1281              | Satisfied                |
| Human Resources         | 1226              | Satisfied                |
| Sales Representative    | 1241              | Satisfied                |
| Healthcare Represent... | 1233              | Very Dissatisfied        |
| Research Director       | 1272              | Very Dissatisfied        |
| Sales Representative    | 1264              | Dissatisfied             |
| Laboratory Technician   | 1216              | Very Satisfied           |
| Research Scientist      | 1286              | Satisfied                |
| Sales Representative    | 1259              | Very Satisfied           |
| Developer               | 1219              | Very Satisfied           |
| Manager                 | 1231              | Very Satisfied           |
| Sales Executive         | 1286              | Very Dissatisfied        |
| Manager                 | 1282              | Dissatisfied             |
| Sales Representative    | 1255              | Very Dissatisfied        |
| Laboratory Technician   | 1222              | Satisfied                |
| Laboratory Technician   | 1229              | Dissatisfied             |
| Research Director       | 1257              | Very Satisfied           |
| Healthcare Represent... | 1291              | Satisfied                |
| Human Resources         | 1232              | Very Dissatisfied        |
| Manufacturing Director  | 1185              | Very Dissatisfied        |
| Manufacturing Director  | 1204              | Satisfied                |
| Healthcare Represent... | 1249              | Very Satisfied           |
| Research Director       | 1239              | Satisfied                |
| Developer               | 1215              | Very Dissatisfied        |

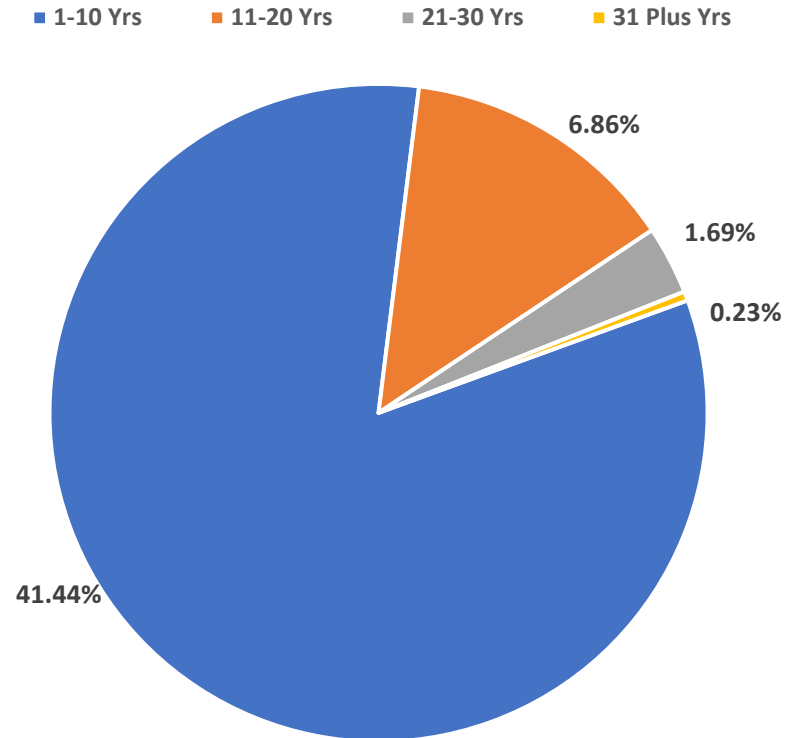
# Insights from KPI 5:

From the analysis we can conclude the work life balance for the attrition employees as below,

Research Directors are **Very Dissatisfied** with Work – Life balance.

The work life balance of Sales representatives , Manufacturing Directors , Managers and Sales executives seems to be **Dissatisfying**.

Human resources , laboratory technicians, Research Scientists , Healthcare representatives and Developers are more likely to be **Satisfied**.



# KPI 6 Attrition Rate Vs Years Since Last Promotion



```

create view Attrition_Rate_Vs_Yr_Since_Last_Promotion as
select
case
  when YearsSinceLastPromotion<=10 then "1-10 Yrs"
  when YearsSinceLastPromotion<=20 then "11-20 Yrs"
  when YearsSinceLastPromotion<=30 then "21-30 Yrs"
  else "31 Plus Yrs"
end as Yr_since_last_promotion,
round(count(EmployeeNumber)/50000,3)*100 as "Attrition rate"
from hr_1
inner join hr_2
on hr_1.EmployeeNumber=hr_2.`EmployeeID`
where attrition = "Yes"
group by Yr_since_last_promotion
order by Yr_since_last_promotion ;

```

Result Grid |   Filter Rows:

|   | Yr_since_last_promotion | Attrition rate |
|---|-------------------------|----------------|
| ▶ | 1-10 Yrs                | 41.400         |
|   | 11-20 Yrs               | 6.900          |
|   | 21-30 Yrs               | 1.700          |
|   | 31 Plus Yrs             | 0.200          |

# Insights from KPI 6:

The **highest** attrition rate is seen where the year since last promotion is between **1-10 years**

Whereas, the year since last promotion is **above 31 years** has the **lowest** attrition rate.



## HR ATTRITION DASHBOARD

Gender

Female

Male

Avg Hourly Rate Reaserch Scientist  
**115**

Total Employees

**50000**

Attrition Count

**25105**

Average Age

**39**

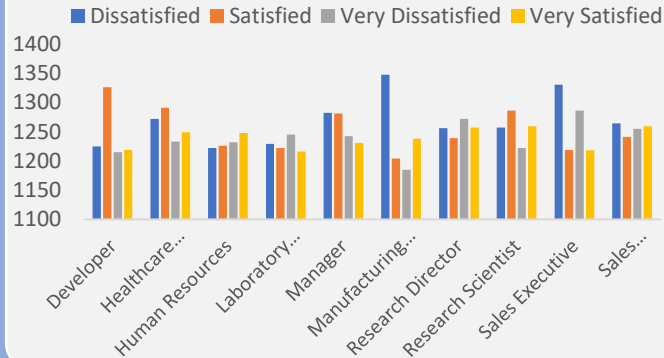
Current Employees

**24895**

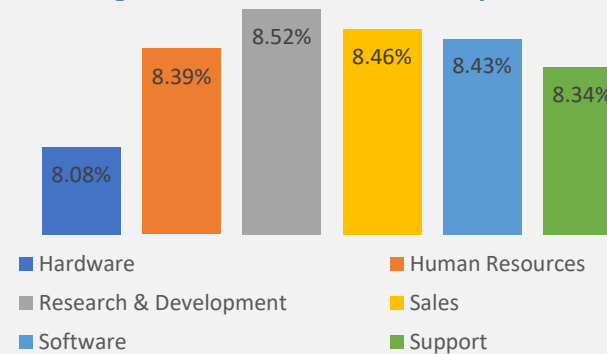
Attrition Rate

**50.21%**

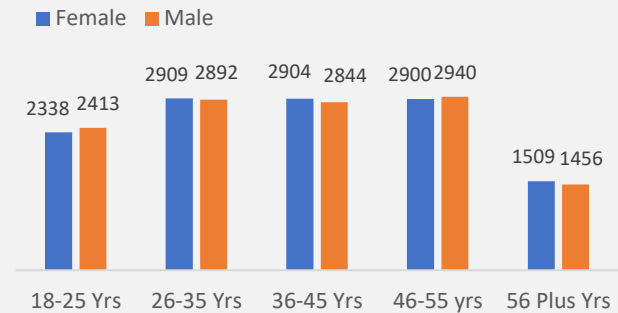
Job Role Vs Work Life Balance



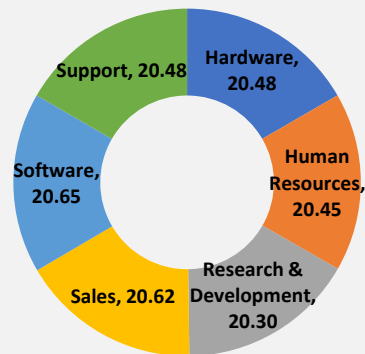
Average Attrition Rate For All Department



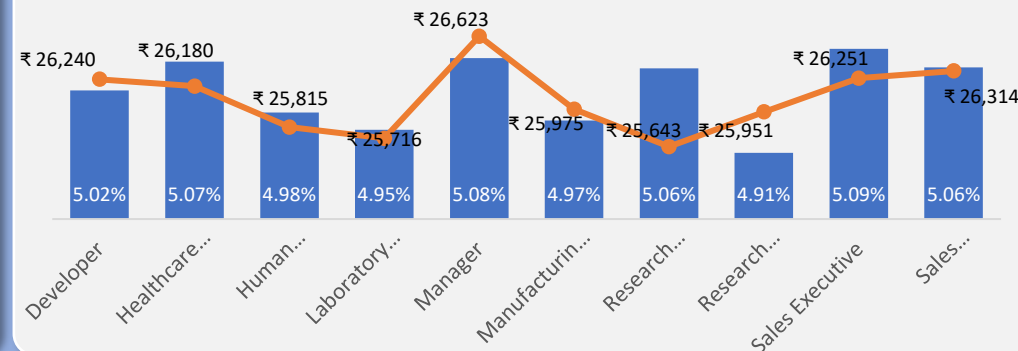
Attrition By Age Group And Gender



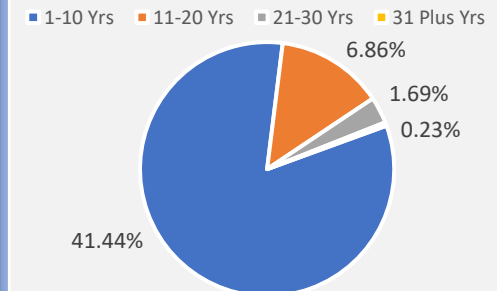
Average working years for each Department



Attrition Rate Vs Monthly Income



Attrition Rate Vs Last Year Promotion



# Strategies for Improving Employee Retention

## 1) Flexible Work Schedule

Allowing employees to have flexible work hours and remote work options increases job satisfaction and work-life balance.

## 2) Professional Development Opportunities

Providing opportunities for learning and growth through training, mentorship, and skill development programs.

## 3) Recognition and Rewards

Implementing a system to recognize and reward employees for their hard work and achievements.

## 4) Open Communication Channels

Creating an environment where employees feel heard and valued through transparent communication channels.

Improving employee retention involves implementing strategic measures to ensure that employees feel supported, valued, and motivated to stay with the company. Offering a flexible work schedule, providing opportunities for professional development, recognizing and rewarding employees, and maintaining open communication channels are key strategies that can significantly impact employee satisfaction and retention rates.

# Conclusion :



Conduct stay interviews: Instead of exit interviews, conduct stay interviews with employees to gather feedback about the job.



Improve employee engagement: Implement initiatives to improve employee engagement, such as regular feedback, recognition and rewards programs, and opportunities for career growth.



Address workload issues: Ensure employees have manageable workloads by regularly monitoring and adjusting workloads to prevent burnout and overwhelm.



Create a positive work environment: Foster a positive work environment by promoting a culture of respect, inclusivity, and teamwork. Encourage open communication and collaboration among employees.



Address pay and compensation issues: Ensure that employees receive fair pay and compensation for their work and to find out what motivates an employee to continue to work in an organization.

# Thank you

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